would allow the identification of receptors for insecticidal peptides and then full-length cDNA constructs can be obtained using several methods (Land, et al., *Nucleic Acids Res.* 9:2251-2266 (1981); Okayama and Berg, *Mol. Cell Biol.* 2:161-170 (1982); Coleclough, et al., *Gene* 34:305-314 (1985); Krawinkel, et al., *Nucleic Acids Res.* 14:1913 (1986); Han, et al., *Nucleic Acids Res.* 15:6304 (1987)).

SUMMARY OF THE INVENTION

[0008] The present invention provides a substantially purified nucleic acid molecule having a nucleotide sequence which is or is complementary to a sequence selected from the group consisting of SEQ ID NO: 1 through SEQ ID NO: 9112.

[0009] The present invention also provides a substantially purified nucleic acid molecule, the nucleic acid molecule capable of specifically hybridizing to a second nucleic acid molecule having a nucleotide sequence which is or is complementary to a sequence selected from the group consisting of SEQ ID NO: 1 through SEQ ID NO: 9112.

[0010] The present invention further provides a substantially purified protein, peptide, or fragment thereof encoded by a nucleotide sequence which is or is complementary to a sequence selected from the group consisting of SEQ ID NO: 1 through SEQ ID NO:9112.

[0011] The present invention also provides a substantially purified nucleic acid molecule encoding a *D. v. virgifera* protein homologue or fragment thereof, wherein the nucleic acid molecules comprises a nucleotide sequence selected from the group consisting of SEQ ID NO: 1 through SEQ ID NO: 9112.

[0012] The present invention also provides a substantially purified nucleic acid molecule encoding a protein or fragment thereof, wherein the protein or fragment thereof is selected from the group consisting of *D. v. virgifera* proteins or fragments thereof from Table 1.

[0013] The present invention also provides a substantially purified protein or fragment thereof encoded by a nucleotide sequence selected from the group that encodes a *D. v. virgifera* protein or fragment thereof from Table 1.

[0014] The present invention also provides a substantially purified nucleic acid molecule encoding a *D. v. virgifera* receptor or fragment thereof for a protein toxic to *D. v. virgifera*, wherein the nucleic acid molecules comprise a nucleotide sequence selected from the group consisting of SEQ ID NO: 1 through SEQ ID NO: 9112.

[0015] The present invention also provides a substantially purified nucleic acid molecule encoding a *D. v. virgifera* receptor or fragment thereof for a protein toxic to *D. v. virgifera*, wherein the nucleic acid molecules comprise a nucleotide sequence selected from the group consisting of SEQ ID NO: 1 through SEQ ID NO: 9112 and wherein said protein is isolated from bacteria, fungi, plants and animals or produced by *B. thuringiensis, Photorhabdus*, and *Xenorhabdus.*

[0016] The present invention also provides a substantially purified receptor or fragment thereof encoded by a nucleotide sequence selected from the group that encodes a *D. v. virgifera* receptor or fragment thereof from Table 1.

[0017] The present invention also provides a substantially purified protein or fragment thereof encoded by a first nucleic acid molecule which specifically hybridizes to a second nucleic acid molecule, the second nucleic acid molecule selected from the group of complements of SEQ ID NO: 1 through SEQ ID NO: 9112.

[0018] The present invention also provides a transformed cell having a nucleic acid molecule which comprises: (A) an exogenous promoter region which functions in the cell to cause the production of a mRNA molecule; which is operably linked to (B) a structural nucleic acid molecule, wherein the structural nucleic acid molecule comprises a nucleotide sequence which is or is complementary to a sequence selected from the group consisting of SEQ ID NO:1 through SEQ ID NO:9112; which is operably linked to (C) a 3' non-translated sequence that functions in said cell to cause termination of transcription.

[0019] The present invention also provides a transformed cell having a nucleic acid molecule which comprises: (A) an exogenous promoter region which functions in the cell to cause the production of a mRNA molecule; which is operably linked to (B) a structural nucleic acid molecule, wherein the structural nucleic acid molecule encodes a receptor or fragment thereof which binds a protein toxic to *D. v. virgifera* and comprises a nucleotide sequence which is or is complementary to a sequence selected from the group consisting of SEQ ID NO: 1 through SEQ ID NO:9112; which is operably linked to (C) a 3' non-translated sequence that functions in said cell to cause termination of transcription.

[0020] The present invention also provides a transformed cell having a nucleic acid molecule which comprises: (A) an exogenous promoter region which functions in the cell to cause the production of a mRNA molecule; which is operably linked to (B) a structural nucleic acid molecule, wherein the structural nucleic acid molecule encode a receptor or fragment thereof which binds a toxin and comprises a nucleotide sequence which is or is complementary to a sequence selected from the group consisting of SEQ ID NO:1 through SEQ ID NO:9112, wherein said receptor or fragment thereof is disposed at the surface of said cell; which is operably linked to (C) a 3' non-translated sequence that functions in said cell to cause termination of transcription.

[0021] The present invention also provides a plant cell, a mammalian cell, a bacterial cell, an insect cell, a fungal cell and an algal cell transformed with a nucleic acid molecule of the present invention.

[0022] The present invention also provides a method for identifying a candidate protein toxic to *D. v. virgifera* comprising: (a) culturing cells transformed with a nucleic acid molecule of the present invention; (b) recovering said cells having a receptor or fragment thereof disposed at their surface, wherein said receptor or fragment thereof binds a protein toxic to *D. v. virgifera*; (c) contacting said cells with said candidate protein; and (d) determining effects of said candidate protein on metabolism or morphology of said cells, wherein said determination is predictive of cytotoxic property of said candidate protein.

[0023] The present invention also provides a computer readable medium having recorded thereon one or more of